

## **REMARKS**

Applicants respectfully thank the Examiner for acknowledging both the claim for foreign priority in this Application as well as the previously-filed Information Disclosure Statements.

In response to the Office Action dated March 17, 2008, Applicants request reconsideration based on the amendments herein and at least the following remarks. Applicants respectfully submit that the claims as presented herein are in condition for allowance.

Claims 1-30 are pending in the present application. Claims 1, 3-4, 6-13, 16, 20-26 and 29 have been amended, while claims 2 and 5 have been canceled. No new matter has been added.

Applicants respectfully request reconsideration of claims 1-30 based upon the amendments and at least the following remarks.

### **Claim Rejections Under 35 U.S.C. §112**

Claim 5 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. It is respectfully noted that claim 5 has been canceled, thereby rendering the rejection thereto moot. Accordingly, it is respectfully requested that the rejection to claim 5 under 35 U.S.C. § 112, second paragraph, be withdrawn.

### **Claim Rejections Under 35 U.S.C. § 103**

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496

(C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claims 1-6 and 9-15 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Kim (U.S. Patent No. 6,924,864, hereinafter “Kim”) in view of Arao (U.S. Patent No. 6,639,265, hereinafter “Arao”), as stated on pages 3-6 of the Office Action. Applicants respectfully traverse for at least the following reasons.

Regarding independent claims 1 and 12, the Examiner states on page 3 of the Office action that Kim teaches all elements thereof except “form a contact layer on the exposed surface of the first signal through the contact hole and connect the two signal lines via the contact layer”, which the Examiner further states is taught by Arao, primarily at FIGS. 22A and 22B, and column 27, line 29 through column 28, line 16.

Applicants respectfully submit that neither Kim nor Arao, alone or in combination, teach or suggest: *forming a contact layer only on the exposed surface of the first signal line through the contact hole by soaking the substrate in chemical conversion solution including a conductive material* (as in amended independent claim 1); *a contact layer disposed only on the exposed surface of the first signal line through the contact hole* (as in amended independent claim 12); or *the first signal line comprises one of Al and Al alloy, and the second signal line comprises one of indium tin oxide (ITO) and indium zinc oxide (IZO)* (as in amended independent claims 1 and 12).

Specifically, Kim lacks any teaching or suggestion as to a contact layer, as stated by the Examiner on page 3 of the Office action. Further, while the Examiner alleges that Arao teaches a contact layer 1256, Applicants respectfully note that component 1256 of Arao is actually multi-layer drain wiring, i.e., drain wiring 1256 made from three layers 1256a, 1256b and 1256c (FIGS. 22A-22B and column 27, line 34-40 of Arao). Therefore, the drain wiring 1256 of Arao is analogous to the second

signal line of the present invention (component 190 of FIG. 2) and not a contact layer. Thus, neither Kim nor Arao teach or suggest a contact layer, as disclosed in claims 1 and 12 of the present invention.

Even assuming *arguendo* that one layer of the film wiring 1236 of Arao is analogous to the contact layer of the present invention and, further, that another layer of the film wiring 1236 of Arao is analogous to the second signal line of the present invention, such a modification/combination would render the present invention and/or the invention of Arao unsatisfactory for their intended purposes, since the second signal line of Arao is drain wiring, e.g., Ti or Al (column 27, lines 37-38), whereas the second signal line 190 of the present invention is a pixel electrode 190 made of ITO or IZO and connected to the contact layer 700 (FIG. 2), as in amended claims 1 and 12.

In addition, as shown in FIGS. 22A-22D of Arao, the allegedly analogous contact layer (the drain wiring 1236) is disposed not only on an exposed surface of the allegedly analogous first signal line (not shown in Arao, assumed only for purposes of argument to be the common line 216 of Kim, as alleged by the Examiner on page 3 of the Office action), but also completely in and around the contact hole of Arao. In contrast and in accordance with the present invention, as disclosed in claims 1 and 12, the contact layer is disposed only on the exposed surface of the first signal line.

Thus, it is respectfully submitted that independent claims 1 and 12, including claims depending therefrom, i.e., claims 3 and 13-15, define over the cited references.

In addition with regard to claim 1 (and similarly for independent claim 4, addressed below), Applicants respectfully disagree with the Examiner's assertion that it would have been obvious to implement a chemical conversion deposition method in Arao and/or Kim, which both fail to teach or suggest the same. Specifically, referring to FIG. 22B of Arao (shown below), the deposition of the data wire (1256) including Ti (1256a), Al (1256b) and Ti (1256c) is performed by using sputtering or evaporation, as further described at column 27, lines 29-49 of Arao. However, Arao,

as well as Kim, fail to disclose that the data wire (1256) can be deposited by a chemical conversion solution, as stated by the Examiner on page 4 of the Office Action.

Furthermore, there is no evidence that there is any motivation to substitute the chemical conversion solution method of the present invention for the vacuum deposition method of Arao. In particular, materials which can be deposited by the vapor deposition method (e.g., sputtering and vacuum evaporation, as in Arao) are clearly different from the conductive materials which can be deposited by the chemical conversion solution method of the present invention. Thus, to attempt to perform the chemical conversion solution method of the present invention with the materials of Arao (or vice versa) would render the present invention and/or the invention of Arao unsatisfactory for their intended purposes, since the materials of the chemical conversion solution method are incompatible with sputtering or vacuum evaporation.

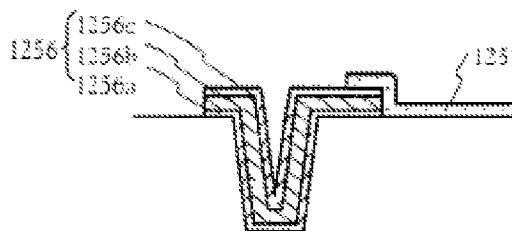


FIG. 22B

**FIG. 22B (ARAO)**

Thus, it is respectfully submitted that independent claim 1, including claim 3 depending therefrom defines over the cited references for this additional reason, as well.

Accordingly, it is respectfully submitted that the rejection of claims 1, 3 and 12-15 under 35 U.S.C. § 103(a) be withdrawn.

Regarding independent claim 4, the Examiner states on page 5 of the Office action that Kim teaches all elements of claim 4 except “forming a first contact layer on the exposed surface of the drain electrode through the first contact hole”, which the Examiner further states is taught by Arao, primarily at FIGS. 22A and 22B, and column 27, line 29 through column 28, line 16.

As discussed above, Applicants respectfully submit that both Kim and Arao, alone and in combination, fail to teach or suggest *forming a first contact layer only on the exposed portion of the drain electrode through the first contact hole by soaking the substrate in chemical conversion solution including a conductive material*, as in amended independent claim 4. In particular, and in the same manner as described above in greater detail with respect to the 103(a) rejection of claims 1 and 12, the drain wiring 1256 of Arao is analogous to the second signal line 190 of the present invention, and thus neither Kim or Arao teach or suggest a first contact layer. Further, analogizing the drain wiring 1256 of Arao to the second signal line 190 of the present invention is incorrect, since the second signal line 190 of the present invention is made of ITO or IZO. In addition, the contact layer of the present invention is disposed only on the exposed surface of the drain electrode, whereas the allegedly analogous contact layer of Arao is clearly disposed in, on and around the exposed surface of the allegedly analogous signal line as well as the contact hole thereof.

In addition, neither Kim nor Arao, alone or in combination teach or suggest performing the chemical conversion solution method of the present invention in lieu of the vapor deposition method of Arao. Further, there is simply no motivation to make any such substitution, since the materials associated with each method are mutually exclusive, as discussed in greater detail above with respect to claim 1.

Thus, it is respectfully submitted that independent claim 4, including claims depending therefrom, i.e., claims 6-11, define over the cited references.

Accordingly, it is respectfully submitted that the rejection of claims 6 and 9-11 under 35 U.S.C. § 103(a) be withdrawn.

**Allowable subject matter**

Claims 16-30 are allowed; Applicants respectfully thank the Examiner for the allowance thereof. Applicants respectfully note that claims 16, 20-26 and 29 have been amended to correct minor grammatical and antecedent basis issues therein; no new matter has been added.

Claims 7 and 8 are objected to as being dependent on rejected base claim 4, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants gratefully acknowledge the Examiner's noting the allowable subject matter in claims 7 and 8, but Applicants respectfully submit that claims 7 and 8 are allowable as depending upon allowable independent claim 4, as described above in greater detail. As such, Applicants have not rewritten claims 7 and 8 in independent form at this time.

**Conclusion**

In view of the foregoing remarks distinguishing the prior art of record, Applicants respectfully submit that this application is in condition for allowance. Early notification to this effect is requested. The Examiner is invited to contact Applicants' attorneys at the below-listed telephone number regarding this Amendment or otherwise regarding the present application in order to address any questions or remaining issues concerning the same. If there are any charges due in connection with this response, please charge them to Deposit Account 06-1130.

Respectfully submitted,

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